

(51) International Patent Classification <sup>7</sup> : A61K 39/39, 39/02, 39/05, 9/127, 9/50, A61P 31/04		A2	(11) International Publication Number: <b>WO 00/56362</b> (43) International Publication Date: 28 September 2000 (28.09.00)
(21) International Application Number: PCT/GB00/01118		(74) Agent: BOWDERY, A., O.; D/IPR, Formalities Section, Poplar 2, MOD Abbey Wood #19, Bristol BS34 8JH (GB).	
(22) International Filing Date: 23 March 2000 (23.03.00)			
(30) Priority Data: 9906696.1 24 March 1999 (24.03.99) GB 9906694.6 24 March 1999 (24.03.99) GB		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).	
(71) Applicant (for all designated States except US): THE SECRETARY OF STATE FOR DEFENCE [GB/GB]; Defence Evaluation and Research Agency, Ively Road, Farnborough, Hampshire GU14 0LX (GB).			
(72) Inventors; and (75) Inventors/Applicants (for US only): ALPAR, Hazire, Oya [GB/GB]; Aston University, Aston Triangle, Birmingham B4 7ET (GB). EYLES, James, Edward [GB/GB]; Aston University, Aston Triangle, Birmingham B4 7ET (GB). SOMAVARAPU, Satyanarayana [IN/GB]; Aston University, Aston Triangle, Birmingham B4 7ET (GB). WILLIAMSON, Ethel, Diane [GB/GB]; CBD Porton Down, Salisbury, Wiltshire SP4 0JQ (GB). BAILLIE, Leslie, William, James [GB/GB]; CBD Porton Down, Salisbury, Wiltshire SP4 0JQ (GB).		Published <i>Without international search report and to be republished upon receipt of that report.</i>	

(54) Title: IMMUNOSTIMULANTS

(57) Abstract

A polycationic carbohydrate such as chitosan, or a pharmaceutically acceptable derivative thereof, are used as immunostimulants. Vaccine compositions containing these polycationic carbohydrates, in particular in particles such as microparticles or liposomes are also described and claimed. Methods of treatment and the use of the polycationic carbohydrates as immunostimulants in the production of vaccines are further aspects described and claimed.